SYSTEM AND METHOD OF PARALLEL LOADFLOW CALCULATION FOR ELECTRICAL POWER SYSTEM

ABSTRACT

Gauss-Seidel-Patel Loadflow (GSPL) loadflow calculation method is invented involving self-iteration over a node within global iteration over n-nodes in n-node power network. Also invented is a network decomposition technique referred to as Suresh's diakoptics that determines a sub-network for each node involving directly connected nodes referred to as level-1 nodes and their directly connected nodes referred to as level-2 nodes and so on, wherein the level of outward connectivity for local solution of a sub-network around a given node is to be determined experimentally. Sub-networks are solved in parallel, and local solution of sub networks are related into network wide global solution using an invented technique. These led to the invention of the best possible parallel computer – a server-processor parallel-processors architecture wherein each of the parallel processors communicate only with the server processor and commonly shared memory locations and not among themselves.